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Astro quiz 2019 questions and answers round 2

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As the first satellite to operate in geostationary orbit, Syncom 2 was launched in 1963 and marked a significant milestone for Hughes’ concept of commercial use. Vladimir Mikhaylovich Komarov is the first person to have made two spaceflights and sadly lost his life during one such flight. The pioneering Sputnik 1 artificial satellite spent approximately seven months orbiting Earth after its launch on October 4, 1957, before re-entering the atmosphere on January 4, 1958. When referring to the Sun’s visible portion, we often use the term photosphere, which translates to “light sphere” due to its radiant appearance from our planet. The day when the Sun’s rays directly cross the celestial equator is known as the equinox, a time when day and night are equal in length. Sir Isaac Newton first proposed the idea of an artificial satellite orbiting Earth, as documented in his book Philosophiae Naturalis Principia Mathematica published in 1687. The Space Age officially began on October 4, 1957, with the Soviet Union’s successful launch of Sputnik 1, the world's first artificial satellite. Neil Armstrong and Edwin Aldrin, Jr. became history-making pioneers as they landed on the moon aboard US spacecraft Apollo 11 on July 20, 1969. As a G2 V star, our Sun belongs to the class characterized by prominent metallic spectral lines, mainly those of iron, calcium, sodium, magnesium, and titanium. The outermost region of the Sun’s atmosphere is known as the corona, where plasma temperatures reach approximately two million kelvins despite extremely low densities. In neutron stars, the intermediate layers are primarily composed of neutrons that likely exist in a superfluid state. James Peebles won the 2019 Nobel Prize for Physics for his work on physical cosmology. He's known for his research on the Cosmic Microwave Background and Cold Dark Matter. A dwarf planet is defined by its size and shape, similar to Pluto, Eris, and Ceres, which were classified as such in 2006. In 1998, scientists discovered dark energy using Type Ia supernovae. It's a repulsive force that makes up 69.4% of the universe. Laika, the first living creature sent into space, rode on Sputnik 2, launched on November 3, 1957. A light-year is about 5.9 trillion miles or 9.5 trillion kilometers – the distance light travels in a vacuum in a year. Mercury is the smallest planet in our solar system by mass and size. Comet nuclei are small solid bodies made of roughly equal parts of volatile ices, fine silicate dust, and organic materials. Dennis Tito became the first space tourist to fund his trip at the cost of $20 million. Fritz Zwicky discovered the existence of dark matter, which makes up 30.1% of the universe's matter-energy composition. The umbra is the dark center of a sunspot; the outer, lighter ring is called the penumbra. Chandra X-ray Observatory was named after Subrahmanyan Chandrasekhar, who won the Nobel Prize for physics in 1983 with William A. Fowler. Syzygy describes when three celestial bodies appear to be in a straight line – as sometimes happens. The doughnut-shaped zones of highly energetic charged particles trapped at high altitudes in the magnetic field are called the Van Allen radiation belts. Named after James A. Van Allen, the Van Allen radiation belt was discovered in 1958 using data transmitted by the US Explorer satellite. The Sun's radius is 109 times that of Earth. Luminosity measures the amount of light an object emits over time. Halley's Comet will return to our solar system in 2061. In 1963, Soviet cosmonaut Valentina Tereshkova became the first woman in space. Luna 2 was the first spacecraft to have a hard landing on another celestial body, striking the Moon in 1959. Georges Lemaître formulated the modern big-bang theory, stating that the universe began with an explosion of a small "super-atom". Adam G. Riess won the Nobel Prize for Physics in 2011 for discovering dark energy, which makes up 69.4% of the universe. There are eight terrestrial planets in our solar system: Mercury to Mars. The International Astronomical Union adopted the dwarf planet category in August 2006, designating Pluto, Eris, and Ceres as the first members. Pluto was removed from the list of planets in August 2006 and given the new classification of dwarf planet. The telescope was invented by someone (no specific person mentioned). Hans Lippershey, a Dutch spectacle maker from around 1570-1619, is widely credited with creating the telescope. The following questions and answers cover various topics related to astronomy: A black hole was spotted in the M87 galaxy using the Event Horizon Telescope in 2017. The scientific term for star twinkling is scintillation. Only Mercury and Venus lack a natural satellite among all solar system planets. Gravity's acceleration at Earth's surface is approximately 9.8 meters per second squared. An emission nebula refers to clouds of interstellar gas, emitting light in different colors due to ionization from nearby stars. The Martian atmosphere primarily consists of carbon dioxide, as determined by Gerard P. Kuiper. The Steady-state theory was introduced in 1948 by British scientists Sir Hermann Bondi, Thomas Gold, and Sir Fred Hoyle as an alternative explanation for the universe's evolution. Francis Baily first observed the phenomenon known as "Baily's beads" during a solar eclipse on May 15, 1836. The discovery of the first exoplanet occurred in 1992. A group of old stars closely packed in a symmetrical form is called a **globular cluster**, which is characterized by a large and massive star cluster. The theory of auroral phenomena was developed by Norwegian geophysicist and mathematician Fredrik Størmer, who explained the formation of auroras through mathematical concepts. Planets have two primary motions: **orbit** and **spin**. Johannes Kepler, a German astronomer, discovered three major laws of planetary motion that revolutionized our understanding of celestial mechanics. The farthest object from the Sun is **90377 Sedna**, which is approximately 13 billion km away. The moment when the Sun is exactly above the Equator and day and night are equal in length is called the **Vernal equinox**. Uranus has an axis that lies almost parallel to its orbital plane, causing it to spin nearly on its side, with its poles taking turns pointing towards the Sun as it orbits. Albert Einstein was awarded the Nobel Prize for Physics in 1921 for his explanation of the **Photoelectric Effect**, a phenomenon where electrically charged particles are released. Peggy Whitson holds the record among American astronauts and women for spending the most time in space, nearly 666 days, after becoming the first female commander of the International Space Station (ISS). Meteoroids entering Earth's atmosphere travel at a minimum speed of more than **11 km per second**. Question: What's the speed difference between a bullet and a spacecraft? Answer: A spacecraft can reach speeds many times faster than a bullet leaving a gun barrel. Question: When was India's first Mars mission launched? Answer: The Mars Orbiter Mission was launched on November 5, 2013, marking India's first interplanetary mission to Mars. Question: Who discovered the Crab Nebula? Answer: John Bevis, an English physician and amateur astronomer, is attributed with the discovery of the Crab Nebula. Question: What's a quasar? Answer: A quasar is a very luminous astronomical object found in the centers of some galaxies, derived from the manner in which it was discovered through radio surveys of the sky. Question: When did the space shuttle Columbia disaster occur? Answer: The fatal U.S. space shuttle Columbia disaster took place on February 1, 2003, resulting in the loss of all astronauts on board. Question: What type of telescope is used to study the moon and planets? Answer: Refracting telescopes or refractors are used for examining the moon and other objects in our solar system. Question: How many space flights did Spacelab carry out? Answer: Between 1983 and 1998, a total of 25 flights were made with Spacelab for various research purposes. AstroQuiz Round 3 Rules: * You have 60 seconds to answer each question. * Discuss amongst yourselves as team members. * Calculators may be used if needed. * No internet or cellphones allowed. * The judge's decision is final. Question 1: Which statement about Proxima Centauri is false? A. It's a red dwarf discovered in 1915. B. It's 4.2 light years away from Earth. C. It's a red dwarf discovered in 1815. D. It's part of the three-star Alpha Centauri system. Question 3: Why can you jump higher on the Moon? A. Because there is no atmosphere. B. Because the magnetic field is weaker. C. Because there is no water. D. Because gravity is weaker. Question 4: During which Moon phase can we experience a total solar eclipse? A. Full Moon B. New Moon C. First Quarter D. Last Quarter Question 5: Why do stars twinkle? A. Because they get smaller and bigger. B. Because of turbulence in our atmosphere. 1. QUESTION 4: The Sun's magnetic field varies in strength because A. it has more spots on its surface B. there are different amounts of hydrogen being fused C. **its magnetic field varies in strength** D. the Earth's magnetic field is stronger 2. QUESTION 5: Why did a star get brighter after passing through a nebula? A. **Because new hydrogen started fusing, increasing its brightness** B. The star was reflecting off another nearby star. C. Its magnetic field changed D. There were no stars around it. 3. Because they fuse different amounts of hydrogen 6. QUESTION 6: Why has the Universe cooled down to about 3 degrees above absolute zero? A. **There were more stars earlier on** B. There were fewer stars earlier on C. It has become bigger D. It is due to climate change 7. QUESTION 7: Which pair of planets below, represent the smallest planets within their own groups? A. Mercury & Saturn B. Jupiter & Earth C. Neptune & **Mercury** D. Mercury & Uranus 8. At what speed does Earth go around the Sun? A. 9,8 km/s B. 11,2 km/s C. **29,8 km/s** D. 23,9 km/s 9. Big stars live longer, because they have more hydrogen to fuse than small ones. A. True B. **False** 10. A starburst galaxy is ... A. a galaxy with stars continually bursting B. a galaxy that produces bursts of intense light in a regular way C. **a galaxy with very high star birth rate** D. None of the above 11. One of the definitions of a Blue Moon is that it is a second full moon in a month. When in 2015 did we have a blue moon? A. May B. June C. July D. **August** 12. Why does a star at the end of its life collapse? A. Its electrons generate a massive pressure B. **There is no heat pressure any more** C. The magnetic field has become stronger D. The electric field has weakened 13. Constellations are ... A. clusters of stars very near each other in space. B. groupings of planets in the sky. C. patterns of stars in the sky. D. **patterns of stars in the sky** 14. All the stars in a constellation are about the same distance from Earth. A. True B. **False** 15. How many days are there between the waxing quarter and waning quarter Moon? A. 29 B. 30 C. **14** D. 31 16. Which celestial body has been selected for possible exploration as it has features that resemble that of the Earth? A. Neptune B. Pluto C. **Mars** D. Uranus 18. What is the most abundant gas found in Venus' atmosphere? A. Nitrogen B. Hydrogen C. Oxygen D. **Carbon Dioxide** 19. The most abundant gas found in Earth’s atmosphere is ... A. Carbon Dioxide B. Nitrogen C. **Oxygen** D. Hydrogen 20. Which of the following is a gas planet and has at least 27 moons? A. Venus B. Mercury C. Neptune D. **Uranus** 21. Which of the following is an inner planet and is usually referred to as morning or evening star? A. **Venus** B. Neptune C. Mars D. Uranus The largest optical telescope in Southern Africa is the South African Large Telescope (C). What is the name of the South African Square Kilometre Array forerunner? It's MeerKAT (C). We don't have lunar or solar eclipses every month because the Earth's orbit around the Sun is not in the same plane as the Moon's orbit around the Earth (B). The second nearest star to us after the Sun is Proxima Centauri. What is the third nearest star to us? It's Barnard’s Star (A). Of the five officially recognised dwarf planets in our solar system, Pluto is the largest, followed by Eris, Haumea, Makemake, and Ceres (A). During a total solar eclipse, the Moon's shadow causes a narrow path of total darkness across the Earth. What is this path of total shadow called? It's called Umbra (C). Proxima Centauri is approximately 4.22 light years away from the Earth. How far is it in km given that 1 light year = 9.46 x 10^12 km? The distance is 3.992 x 10^13 km (C). Whilst on Earth, the Sun rises in the east and sets in the west, on Venus... the Sun also rises in the east and sets in the west (B). A solar eclipse occurs during the day whilst a lunar eclipse occurs only at night. This statement is False (A).